

Reply to Office Action of March 08, 2005
Amendment Dated: March 17, 2005

Appl. No.: 09/924,722
Attorney Docket No.: CSCO-009/4342

REMARKS

Claims 1-32 were presented for consideration in the application as originally filed. All the presented claims were rejected under 35 U.S.C. § 103 and claims 1, 21 and 25 were rejected under 35 U.S.C. § 112 second paragraph. By virtue of this amendment, claim 25 is sought to be amended and new claims 33-36 are sought to be added. The
5 additions and amendment are believed not to introduce new matter, and their entry is respectfully requested. Claims 1-36 are thus presented for consideration. Reconsideration is respectfully requested further in view of the below remarks.

Telephone Interview

Applicants and the undersigned representative thank the Examiner for providing
10 the opportunity to conduct the telephone interview on March 16, 2005. Only the undersigned representative and Examiner Ng were present in the interview. A draft amendment containing some of the contents of this paper were sent in advance to the Examiner and discussed in the interview. Agreement appeared to have been reached that the claims, at least as amended, overcome the rejections of record.

15 The Examiner had indicated that the Interview Summary Form PTOL-413 would be mailed in due course. It is respectfully requested that the completed form be mailed at the Examiner's earliest convenience, if one has not already been mailed.

The applicant is believed to have met the burden of making of record the Substance of the Interview. See MPEP 713.04 for further clarification.

20 Claim Rejections - 35 USC § 112

Claims 1, 21 and 25 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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In particular it was asserted that, "It is unclear in independent claims 1, 21 and 25 how the first end system concludes that the bi-directional virtual circuit is operational according to the determination of the another end system, since the another end system receives the plurality of response packets." (Page 2, Point number 2, second paragraph).

5 It is respectfully pointed out that reciting in the independent claims how the first end system concludes, would in effect reduce the scope of protection for the applicant. In addition, it is believed that the applicable laws/practice do not require the applicant to recite the specific manner in which a feature is provided. Accordingly, withdrawal of the rejection is respectfully requested.

10 In addition, it was noted that the term 'said gateway' lacks antecedent basis in claim 25. In response, claim 25 is sought to be amended to replace 'said gateway' with 'said first end system', which has proper antecedent basis. Withdrawal of the rejection is respectfully requested.

Claim Rejections - 35 U.S.C. § 103

15 Claims 1-3, 10-12, 18-23 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,424,629 to Rubino et al. Applicants traverse the rejection for reasons noted below.

It is asserted that Rubino, neither individually nor in combination with other prior art of record, teaches or suggests one or more features of original claim 1. Original claim 1 recites in relevant parts:

20 1. A method of determining the status of a bi-directional virtual circuit in a first end system, wherein said *bi-directional virtual circuit is provisioned between said first end system and another end system*, said method comprising:
25 receiving in said first end system a plurality of loopback command packets from said another end system on said bi-directional virtual circuit;
sending from said first end system a plurality of loopback response packets to said another end system, wherein *said another end system*

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determines that said bi-directional virtual circuit is operational based on the reception of said plurality of said response packets; and concluding in said first end system that said bi-directional virtual circuit is operational according to the determination of said another end system.
(Original Claim 1, *Emphasis Added*)

From the above, it may be appreciated that in a method in accordance with claim 1, the another end system determines that the bi-directional virtual circuit is operational based on receiving the (loopback response) packets responsive to earlier sent loopback command packets. The first end system concludes that the same bi-directional virtual circuit is operational if the another end system has determined that the bi-directional virtual circuit is operational.

Due to such a feature, additional traffic on the network (on which the bi-directional virtual circuit is provisioned) may be avoided since the first end system potentially need not send loopback command packets to determine whether the bi-directional virtual circuit is operational.

Rubino does not disclose or suggest such a feature. In particular, it is the applicants' position that even though Rubino appears to disclose the use of loopback cells (OAM cells) to determine the status of logical connections (which are arguably akin to or identical to the bi-directional virtual circuit of claim 1), Rubino does not disclose or suggest using the determined status information in the end system at the other end of the logical connection to conclude (in that end system at the other end) that the logical connection is not operational. To explain the basis for such a position, the relevant portion of Rubino is first pointed out.

... Specifically, protocols at the lowest layer in the protocol stack, typically referred to as the "layer 1" or "physical layer" protocols, define the physical and electrical characteristics for transporting data across a connection. *Protocols at the next layer in the protocol stack, typically referred to as the "layer 2" or "data link layer" protocols, define the format of the data transported by the physical layer protocols. Protocols implemented at layer 3 (typically referred to as the "network layer") and above ultimately utilize the services provided by the data link layer protocols to transport information within the communication network.*

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(Col 1 lines 28 - 39 of Rubino, *Emphasis Added*)

Upon detecting the failure of the logical connection, the ATM Layer Logic 1008 sends a signal to the Network Layer Logic 1006 over the interface 1018 indicating that the logical connection failed. This prompts the Network Layer Logic 1006 to delete the logical connection from the routing table 1012 over the interface 1020, which in turn prompts the Routing Protocol Logic 1004 to select an alternate logical connection, *update the routing table 1012 to re-route information to the alternate logical connection, and advertise the updated routing information to the other ATM routers.*

Likewise, upon determining that communication over the failed logical connection has been restored, the ATM Layer Logic 1008 sends a signal to the Network Layer Logic 1006 over the interface 1018 indicating that the logical connection has been restored. This prompts the Network Layer Logic 1006 to add the logical connection to the routing table 1012 over the interface 1020, which in turn prompts the *Routing Protocol Logic 1004 to update the routing table 1012 to re-route information to the restored logical connection and advertise the updated routing information to the other ATM routers.*

(Col 9 Ln 61 through Col 10 Ln 14 of Rubino, *Emphasis Added*)

From the above, it is believed that Rubino teaches that when the ATM logical connection is determined to be non-operational, routing table 1012 would be updated. The updated routing information is then advertised to the other ATM routers.

From the description of Rubino, it appears that ATM routers of Rubino would process the advertised information. There appears to be no disclosure in Rubino that the layer-3 routers (receiving the routing information) would use the routing information to determine that the logical connection is not operational, as claimed in claim 1.

The Examiner also appears to agree with the above conclusion of the absence of disclosure in Rubino, and it is stated in the Outstanding Office Action:

Rubino et al do not specifically disclose the step of concluding in said first end system (ATM router 108) that said bi-directional virtual circuit (PVC) is operational according to the determination of said another end system (ATM router 102). However, Rubino discloses that after ATM router 102 determines which PVC's have failed or have been restored, it "advertises the updated routing

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information to the other ATM routers". Refer to Column 9, lines 53 to Column 10, lines 30. *Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the step of concluding in said first end system that said bi-directional virtual circuit is operational according to the determination of said another end system, the motivation being so that the first end system will be able to know which paths are functional in order to transmit and receive data.*

(Page 3 line 17 to Page 4 line 3, Outstanding Office Action, *Emphasis Added*)

As a threshold matter, it is first noted that the Examiner has not shown any other reference which discloses the concluding step of claim 1. The Examiner is reminded that the Patent Office has the initial burden of showing each feature of the claim in the art of record before combining features from multiple references for rejections based on 35 U.S.C. § 103. Here, the Examiner has clearly not met that burden of first showing each feature in the art of record.

If these features not of record are based on facts within the personal knowledge of the Examiner, applicants respectfully request an affidavit from the Examiner supporting the facts. See MPEP § 2144.03.

Even assuming that such burden of showing each feature of the claim in the prior art is met, Applicants disagree with the assertion of obviousness (Emphasized above). It is asserted that, contrary to the Examiner's position of above, it is not obvious to conclude the status of a bi-directional virtual circuit (provided at a lower layer) based on routing information (which is at a higher protocol level) received from other ATM routers, at least in environments such as those described in Rubino.

In support of this assertion, it is first noted that the disclosure of Rubino substantially deals with determination of status of logical connection and update of the routing tables, all within the same ATM router. That same ATM router is described as advertising the routing information to other ATM routers. Again, there is no disclosure

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or suggestion in Rubino that this information can be used in the other ATM routers to make conclusions regarding the status of the logical connection at lower layers.

Furthermore, the same bi-directional virtual circuit (provided at a lower layer) would generally be used by multiple routes operating at a higher level. The routes could
5 change for reasons unrelated to the status change of the underlying bi-directional virtual circuits. Accordingly, it would not be obvious to determine the status of bi-directional virtual circuits from the route information advertised by external devices.

Claims 2 - 9 and 33 are allowable at least as depending from an allowable base claim. Claim 33 is allowable for the additional reason that the first end system concludes
10 that the bi-directional virtual circuit is operational based on a pattern in which the loopback command packets are received from the another end system (which determines whether the bi-directional virtual circuit is operational based on loopback response packets). In sharp contrast, the ATM routers in position similar to the another end system of claim 1, appear to only advertise routing information.

15 Accordingly, claim 33 is independently allowable over the art of record. Claims 2 and 5 are also believed to be allowable over the art of record for similar reasons. The remaining claims presented for consideration also believed to be allowable for one or more of the reasons noted above.

20 Accordingly, all the claims presented for consideration are believed to be allowable over the art of record.

The Examiner is invited to telephone the undersigned representative at (707) 356-4172 if it is believed that an interview might be useful for any reason.

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Respectfully submitted,

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